

USSR

KUTUZOV, G. P., ZOSIMOVSKAYA, T. V., KANYGIN, Yu. I.

"Herbicides in Feed Production"

Gerbitsidy v Kormoproyizvodstve [English Version Above], Moscow, Rossel' khozizdat Press, 1971, 144 pages (Translated from Referativnyy Zhurnal, Khimiya, No 3, 1972, Abstract No 3 N676 K by T. Belyayeva).

Translation: This book discusses problems related to the use of herbicides for destruction of weeds in hay fields and pastures, and factors influencing the toxicity of herbicides.

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USSR

UDC: 669.295.48.053.4

LISKOVICH, V. A., MEYERSON, G. A., BOYKO, A. I., KANYUK, A. I.

"Processing of Untreated Titanium Alloy Wastes by the Hydrogenation-Hydrometallurgy Method"

Moscow, Tsvetnyye Metally, No 7, Jul 73, pp 38-41.

Abstract: The expediency and economic effectiveness of the use of combined modes of leaching of the products of hydrogenation of untreated titanium alloy wastes with solutions of nitric acid and caustic alkali for extraction of aluminum, vanadium and molybdenum into solution before final electric refining are demonstrated. The alloying elements were extracted from the hydrogenation products by leaching in a heated ball mill. The combination of the grinding action of the balls with the chemical action of the reagents intensifies the process. The optimal extraction conditions were found to be: mill rotation rate 80% of critical, liquid:solid ratio 20:1, ball load 30% of mill volume. The total economic effect of the recovery process is 546 rubles per ton of powder, or 331 rubles per ton of titanium waste.

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KANYUK, A.I.

Powder metallurgy

JPRS 58217

13 February 1973

UDC 669.295

ECONOMIC EFFECTIVENESS OF POWDER METALLURGY OF TITANIUM

[Article by A. I. Kanyuk, Yu. G. Olagov, V. S. Ustinov; Moscow, *Tsvetnyye Metally*, Russian, No 5, 1972, pp 68-71]

Powder metallurgy, in its time, played the deciding role in the development of the titanium industry; today it is again established as one of the most important trends in the development of the titanium industry. With powder metallurgy methods the raw materials can be used most efficiently, subsequent mechanical processing operations can be minimized, various compositions with given porosity, strength, heat- and corrosion resistance can be produced. Compared with the manufacture of parts from compacted metal, the use of powder metallurgy methods reduces wastes 5-7 times. All of this makes powder metallurgy an economical process, particularly as regards titanium, considering its relatively high cost and known difficulties involved in recycling wastes.

Expansion of effective use of powders and products made from them in the most advanced fields of industry, the most important of which we will also discuss, has also had an enormous impact on the development of titanium powder metallurgy.

Porous Cermet (Filters, Getters, and so forth)

Metal ceramic titanium filters made of electrolytic and hydrocalcium powders and also of sponge wastes are used successfully in nonferrous metallurgy, chemistry, pharmaceutical and food industries.

The quality of filtrate, and consequently of industrial final products, is improved by using titanium filters for filtering titanium tetrachloride from vanadium oxytrichloride -- complete filtration of solid suspension is achieved and the vanadium concentration does not exceed 0.001%; the filtration of magnesium decreases the iron concentration in it by 30-40%, decreases the hardness of titanium sponge by 7 HB units; by filtering nickel pulp (6H - 3-5, C - 65-80°C) the fineness of filtration is increased to 30 micron. Porous tubes (35-40% porosity, small fractions of sponge wastes are the initial material) also exhibit good filtering properties in the filtration of suspensions of the alumina industry [1-3].

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Titanium

USSR

UDC 669.295

KANYUK, A. I., OLESOV, Yu. G., and USTINOV, V. S.

"Economic Effectiveness of Titanium Powder Metallurgy"

Moscow, Tsvetnyye metally, No 5, May 72, pp 68-70

Abstract: A review is presented of the titanium industry in recent years and the effective utilization of cermets in the most advanced technological sectors, including the production of porous cermets (filters, getters, etc.), compact parts and intermediate products, and anticorrosive titanium powder coatings. Titanium cermet filters produced from electrolytic and hydrocalcium powder as well as from sponge waste have been widely used in the nonferrous metallurgy, chemical pharmaceutical, and food industries. The capacity of porous Ti for gas absorption promoted its potentials for sputter-ion super-high vacuum. General Electric Company initiated the mass production of bearing housings for GET73 turbojet engines from unalloyed titanium powder produced from titanium sponge. The cost of bearing housings produced by hot powder pressing is 25-30% lower than that of similar parts---by forging of rods. The titanium institutes have come out with a new type of anticorrosive coating based on epoxy resin with titanium powder as the filler. The new coating offers high corrosion

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KANYUK, A. I., et al, Tsvetnyye metally, No 5, May 72, pp 68-70

resistance, chemical stability, high adhesion to metal and concrete, high bearing strength (2000 kg/cm^2), long service life, and biological inertness. The economic effectiveness per ton of electrolytic powder used in the anticorrosive coating amounts to 8000-9000 roubles yearly. The article further outlines the production cost aspects of titanium powder and the enormous potentials of titanium powder metallurgy. (1 table, 13 bibliographic references)

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USSR

UDC: 669.295-492

USTINOV, V. S., LOBANOV, V. S., CLESOV, Yu. G., KANYUK, A. I.,
and ZAPADNYA, V. I.

"Technical-Economic Problems and Prospects in the Development of
Titanium Powder Metallurgy"

Moscow, , Tsvetnyye Metally, No 8, Aug 70, pp 73-76

Abstract: The factor which has prevented the wide use of titanium has been the high cost of parts made from castings of the metal. In the industrial production of such parts and semi-finished products from titanium castings, 70-80% of the furnace charge is waste. Nor can the waste be reprocessed to bring it up to standard. However, the metal-ceramic method of producing such parts lends itself readily to automation, and the waste is less than 2% of the weight of the finished part. Thus, the economy in materials and labor is reflected in a substantial reduction of the production costs. One metallurgical plant (unidentified) has a method for recovering titanium dioxide with calcium hydride. The titanium powder then obtained, with a grain size of less than 40 microns, contains 0.2-0.3% H, 0.04-0.07 C, 0.05-0.08 Ca, 0.2-0.35 of Fe and Ni, 0.006 Cl, 0.2-0.25 O. The powder is used in

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USTINOV, V. S., et al., Tsvetnyye Metally, No 8, Aug 70, pp 73-76

electronics production as a getter, for the production of porous filters, and other products. Such products, however, suffer from poor mechanical properties because of the high content of impurities. Hydrogenation is a likely method of titanium powder production. The resulting powder is large-grained, but can be broken down to any desired size. Its wastes can be reprocessed on a large laboratory scale. Electrolysis of titanium production wastes with a soluble anode is also a promising method for obtaining titanium powder. The quality of the powder is good and the process is adaptable to industrial conditions of production. The authors present the results of computations they have made of the anticipated production costs of these methods.

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USSR

UDC 539.3

KANY SHEV, Yu. I.

"Experimental Study of Plates on an Elastic Base"

Kratk. Soderzh. Dokl. k 28 Nauch.-Tekhn. Konf. Novosib. Inzh.-Stroit. In-t [Brief Contents of Reports Presented at 28th Scientific and Technical Conference of Novosibirsk Institute of Construction Engineering -- Collection of Works], Novosibirsk, 1971, pp 165-166, (Translated from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract No 11 V179).

Translation: Plates resting freely on an elastic base are loaded with a concentrated force applied to the center of the plates. The steel plates are 3 mm thick, square with sides of 20 x 20 cm and circular 20 cm in diameter. Tests were performed to determine the modulus of elasticity and Poisson's coefficient of the material of which the specimens were made. A layer of sand 30 cm thick was used as an elastic base. Before testing of each plate, the bedding factors of the two-parameter base were determined. The vertical displacements of individual points during the course of the experiments were measured by an indicator with a scale division of 0.01 mm, relative deformations of the upper fibers of the plates were measured using wire resistance sensors with a gauge length of 10 mm. The sensors were cali-
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UDC 539.3

KANYSHEV, Yu. I., *Kratk. Soderzh. Dokl. k 28 Nauch.-Tekhn. Conf. Novosib. Inzh.-Stroit. In-t.*, Novosibirsk, 1971, pp 165-166.

brated on an equal-resistance calibration beam. Deformation was measured by a high-stability VST-4 static tensometer. The results of experiments were used to construct graphs of the dependence of bends at individual points on the plate on load, showing zones of elastic-plastic deformation on the surfaces of the plates.

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Miscellaneous

USSR

UDC 538

KURITSYNA, YE. F., and KAO LAN, Moscow State University imeni M. V. Lomonosov

"Anisotropy of the Plane Hall Effect in Monocrystalline Films of Nickel and Nickel Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 508-511

Abstract: The plane Hall effect was studied on epitaxial films of nickel and nickel alloys (NiFe, NiCu) grown on the (001) plane of an LiF single crystal. The films were prepared by thermal evaporation in a vacuum of $2 \cdot 10^{-5}$ mm Hg and deposition on the fresh cleavage of the LiF at $\sim 380^\circ\text{C}$. In order to study the anisotropy in the (001) plane, a series of films (nine) was prepared in the form of elongated rectangles, the long sides of which were oriented at different angles ($\theta = 0$ to 45°) to the $\sqrt{100}$ direction. Samples, along the long sides of which the current was passed, were placed in an electromagnetic field sufficient to magnetize film to saturation. While the film was slowly rotated in the field lying in its plane, the transverse electromotive force generated as a function of the angle θ between the current and the field direction was recorded. To determine the nature of the anisotropy, curves $A_\theta/A_0 = f(\theta)$ were plotted, where A_0 is the amplitude of the emf force for the sample, through which the current was passed along the $\sqrt{100}$ direction, and A_0

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KURITSYNA, YE. F., et al, Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 508-511

is the amplitude of the emf for the sample having different angle θ between the direction of the flowing current and $[100]$. Values of A_{θ}/A_0 decreased with the current direction deviation from the plane (001) from the tetragonal to diagonal axis. The highest decrease of A_{θ}/A_0 was observed for nickel film when the angle θ varied from 0 to 45° . The anisotropy of the Hall plane effect was observed for all alloys studied. The value of the transverse emf in the direction $[110]$ was lower than in the direction $[100]$. Small additions of Fe and Cu decreased the anisotropy of the plane Hall effect; and this decrease was much stronger in the case of Fe than in the case of Cu. For films with 15% Fe the anisotropy was minimal but it increased with higher amounts of Fe. The course of the dependence A_0/A_{45} on composition and the fact that the anisotropy was minimal for alloys with zero magnetostriction led to the assumption that anisotropic stresses in films, which originate in their magnetic fields due to magnetostriction, cause the anisotropy of the plane Hall effect. Measurements of the resistance anisotropy to magnetization of films with cubic lattice showed that anisotropy of the plane Hall effect and the magnetization anisotropy are

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KURITSYNA, YE. F., et al, Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 508-511

interconnected, and determination of one of these effects makes it possible to judge the other. The nature of the plane Hall effect and the resistance anisotropy to magnetization is the same phenomenon. In other words, they are governed by identical physical factors.

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1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--MECHANISM OF THE ANTIOXIDANT ACTION OF CARBON BLACK -U-
AUTHOR--(02)-KAPACHAUSKENE, YA., SHLYAPNIKOV, YU.A.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(3), 187-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--CARBON BLACK, CHEMICAL DECOMPOSITION, POLYETHYLENE,
HYDROPEROXIDE, ANTIOXIDANT ADDITIVE, CATALYST ACTIVITY, ORGANOSILICON
COMPOUND, MOLECULAR STRUCTURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1203 STEP NO--UR/0460/70/012/003/0187/0189
CIRC ACCESSION NO--AP0116668
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0116668

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CARBON BLACK (I) CAUSES THE DECOMPN. (OR RECOMBINATION) OF PEROXY FREE RADICALS AND, WHEN USED AS A FILLER IN HIGH-D. POLYETHYLENE, IT ACTS AS ANTIOXIDANT ESP. AT HIGH CONCNS. OF HYDROPEROXY RADICALS (YA. P. KAPACAUSKIENE ET AL., 1967). HOWEVER, I ALSO CATALYZES THE OXIDN. OF ANTIOXIDANTS, SUCH AS LONOL OR BIS(2-HYDROXY,3,TERT,BUTYL,5,METHYLPHENYL)METHANE. AN ATTEMPT TO BLOCK THE CATALYTIC ACTIVITY OF I BY REPLACING SOME OF OH GROUPS ON ITS SURFACE BY OSIME SUB3 GROUPS (BY 24 HR IMMERSION OF I IN 0.1PERCENT ME SUB3 SICL SOLN. IN BENZENE) WAS UNSUCCESSFUL. THE ANTIOXIDATIVE AND CATALYTIC PROPERTIES OF I WERE RELATED TO ITS GRAPHITE TYPE STRUCTURE. FACILITY: INST. KHIM. KHIM. TEKHNOL., VILNIUS, USSR.

UNCLASSIFIED

Radiation Chemistry

USSR

UDC 541(64+8):547.281.1

KIRYUKHIN, D. P., KAPLAN, A. M., BARKALOV, I. M., GOL'DANSKIY, V. I., Institute of Chemical Physics of the USSR Academy of Sciences

"Study of the Mechanism of Radiation Polymerization of Solid Formaldehyde"

Moscow, Vysokomolekulyarnyye soyedineniya -- Vol 14, No 10, 1972, pp 2115-2119

Abstract: A study was made of the radiation solid phase polymerization of formaldehyde using the calorimetric procedure which permits direct observations of the polymerization kinetics by the heat release (A. M. Kaplan, et al., Khimiya vysokikh energii, No 3, 460, 1969; D. P. Kiryukhin, et al., Vysokomolek, soyed., No B12, 491, 1970; I. M. Barkalov, Kinetics and Mechanism of Polymerizations, Vol VI, Budapest, 850, 1971) Chain polymerization takes place in solid formaldehyde at 15-140°K. The chain nature of the process proves the very high radiation yields ($G(-M) \approx 10^3$ at 15° K). The chain processes were observed at such low temperatures for the first time. The temperature dependence of the polymerization rate of the formaldehyde corresponds to the formal activation energy of 2 ± 0.6 kcal/mole for the 80-140° K interval. At lower temperatures the process takes place without activation. The process of decrease in the formaldehyde polymerization rate at constant temperature becomes noticeable even for low degrees of conversion ($\sim 0.2-0.5\%$). It is connected with a decrease in the growth constant on development of the

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KIRYUKHIN, D. P., et al., Vysokomokulyarnyye soyedineniya, Vol 14, No 10, 1972, pp 2115-2119

polymer chain in the solid crystal. Two different processes take place in solid formaldehyde; the rate of the first process depends sharply on the temperature and it is exhibited primarily at relatively high temperatures (80-140°K); the second process which is in practice thermally independent becomes predominant at low temperatures (80-15°K). This indicates that at low temperatures the chain propagation mechanism connected with tunnel proton transfer becomes predominant in solid formaldehyde.

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USSR

UDC: 632.95

GVERDTSITELI, I. M., MUKHASHAVRIYA, A. L., TSIRGILADZE, T. V., ADAMIYA, S. V.,
TALIYA, D. P., TSINTSADZE, E. S., and KAPANADZE, G. G., Institute of Plant Pro-
tection, Academy of Sciences, Georgian SSR

"Study of the Toxicity of Certain Organotin Preparations for the European
Spruce Bark Beetle (*Dendroctonus micans kugel*)"

K izucheniyu toksicheskikh svoystv nekotorykh olovoorganicheskikh preparatov
protiv bol'shogo yelovogo luboyeda (*Dendroctonus micans kugel*) (cf. English
above), Tbilisi, 1970, 8 pp, bibliogr. 4 titles (from RZh-Khimiya, No 23, 10
Dec 70, Abstract No 23 N726 Dep)

Translation: The toxicity of some new organotin unsaturated alcohols was stu-
died under Georgian conditions. The preparations were effective in controlling
the European spruce bark beetle both in the laboratory and in the field.

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1/2 018 UNCLASSIFIED PROCESSING DATE--230C17C
TITLE--NECROSIS OF RENAL PAPILLIN CHILDREN -U-
AUTHOR-(02)-MURVANIDZE, D.D., KAPANADZE, G.I.
COUNTRY OF INFO--USSR
SOURCE--UROLOGIYA I NEFROLOGIYA, 1970, NR 3, PP 7-12
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--KIDNEY, GENITOURINARY SYSTEM DISEASE, STONE, NECROSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/2057 STEP NO--UR/0606/70/000/003/0007/0012
CIRC ACCESSION NO--AP0120700
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--23OCT7

CIRC ACCESSION NO--AP0120700

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NECROSIS OF THE RENAL PAPILLI IS NOT UNCOMMON IN CHILDREN. IT IS MOSTLY A COMPLICATION OF ACUTE PYELONEPHRITIS. NEPHROLITHIASIS MAY SERVE AS A COMPLICATION OF NECROSIS OF THE RENAL PAPILLI, IT IS CAUSED BY OBSTRUCTION OF RENAL TRACTS BY A STONE. A POSSIBILITY OF NECROSIS OF THE RENAL PAPILLI SHOULD BE KEPT IN MIND IN THE PRESENCE OF HEMATURIA WITH RENAL INSUFFICIENCY AND FEVER IN CHILDREN. FACILITY: DETSKOYE OTD. INSTITUTA UROLOGII IM. A. P. TSULUKIDZE MINISTERSTVA ZDRAVOOKHRANENIYE CRUZINSKOY SSR.

UNCLASSIFIED

USSR

UDC: 612.825.266

KAPANADZE, T. K., and CHIDZHAVADZE, E. O., Institute of Physiology, Academy of Sciences of the Georgian SSR

"Influence Which Electrical Stimulation of the Olfactory Bulbs Has on the Behavior and Electrical Activity of the Neo- and Archipaleocortex of a Cat"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 67, No 2, Aug 72, pp 437-440

Abstract: The paper analyzes the results of experiments done to determine the influence of stimulation of the olfactory bulbs on the behavior of the neo- and archipaleocortex. The experimental animals were cats with implanted electrodes. An electrical stimulus comprised of high-frequency square pulses was used. A spectral analysis was done and waves of different frequencies were integrated for a five-second period on the electroencephalogram. The following rhythms were integrated in each period: delta (2-4 Hz), theta (4-8 Hz), alpha (8-13 Hz), beta-one (13-20 Hz), beta-2 (20-30 Hz). Differences were observed in both behavioral and encephalographic changes when different strengths of electric pulses were used to stimulate the olfactory bulbs. Protracted but weak stimulation (1.5-3 V)

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KAPANADZE, T. K., CHIDZHAVADZE, E. O., Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 67, No 2, Aug 72, pp 437-440

causes drowsiness accompanied by synchronous high-amplitude waves in both the old and new cortex. In the case of a short-action stimulus, cessation is followed by desynchronization, which correlates with behavioral arousal. A stronger electrical stimulus of the olfactory bulbs against a background of a sleepy state induces desynchronization of the electrical activity of both the neo- and archipaleocortex. If stimulation leads to encephalographic arousal without behavioral awakening, no autonomic shifts are observed. Intensifying stimulation of the olfactory bulbs leads to desynchronization of the EEG and behavioral arousal accompanied by considerable shifts in the EEG. Strong stimulation in the wakeful state induces licking and sniffing. At the same time, the animals refuse to feed. Upon cessation of the stimulus, feeding behavior is activated in animals even though they are full. It is assumed that inhibition of feeding behavior is due to the direct action of the olfactory bulbs on the hunger center of the lateral hypothalamus. Above-threshold stimulation during wakefulness leads to the development of epileptiform discharges in the archipaleocortex. This is another indication of strong functional connections between the olfactory bulbs and rostral

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USSR

KAPANADZE, T. K., CHIDZHAVADZE, E. O., Soobshcheniya Akademii Nauk Gruzin-skoy SSR, Vol 67, No 2, Aug 72, pp 437-440

structures of the limbic system. It is concluded that the olfactory bulbs, while taking care of the function of smelling, may also participate in the sleep-wakefulness cycle on the one hand, and in regulating feeding and defensive behavior on the other hand. In particular, the olfactory bulbs may have an inhibiting effect on the hunger center in the lateral hypothalamus, and an intensifying effect on defensive reactions.

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USSR

UDC 678.746

VARDOSANIDZE, TS. N., GVATUA, SH. SH., GEORGADZE, YE. Z., KAPANADZE, V. I.,
MUMLADZE, V. V., KHANEVICH, V. A., CHAVCHANIDZE, V. V., Corresponding Member
of the Georgian Academy of Sciences SSR, CHAGULOV, V. S., and CHKHIKVISHVILI,
L. V., Institute of Cybernetics, Academy of Sciences Georgian SSR

"Several Spectral Characteristics of Polystyrene Activated with Europium
Chelate"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 63, No 3, Sep 71,
pp 581-584

Abstract: The spectral characteristics of Eu^{3+} chelates have been investigated
by a number of authors both in methylmetacrylate and in alcohol solutions. In
this article the authors investigate samples of polystyrene doped with 0.02-2
wt % europium benzoyl acetate; the samples are 15 mm in diameter and 2 mm
thick. They find that such a material exhibits a strong absorption in the
region of 3000-4000 Å and the material of the base that is, polystyrene has
strong absorption bands in the ultraviolet band of the spectrum; however, it is
fully transparent from 3000 Å and up to 1.1μ . The luminescence and absorp-
tion spectra are graphically illustrated. The authors find that polystyrene is
a successful base for europium benzoyl acetate. The article contains 3
illustrations and 8 bibliographic entries.

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USSR

UDC 612.825

KAPANADZE-DZHANASHIA, T. K., Institute of Physiology, Georgian Academy of Sciences

"Formation of a Conditioned Defensive Reflex After Electrical Stimulation of the Pyriform Cortex"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, No 1, 1973, pp 189-192

Abstract: Electrical stimulation of the entorhinal region of the pyriform cortex in adult cats elicited a fear reaction accompanied by pupillary dilatation, accelerated respiration, tachycardia, and intensification of the hippocampal theta rhythm. Ten to 15 combinations of a tone (conditioned signal) with the electrical current resulted in the formation of a conditioned defensive reflex. Thereafter, presentation of the tone alone was sufficient to induce the same behavioral and EEG changes as direct stimulation of the entorhinal cortex. This experiment suggests that the entorhinal cortex functions as a regulator of emotional reactions.

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USSR

UDC 621.317.77 5

MISYURA, V. A., PIVEN', L. A., SURKOV, A. K., SOMOV, V. G.,
KARATEYEV, N. G., ZAGVOZDEIN, B. V., NABOKA, A. N., LITVINENKO,
O. A., and KAPANIN, I. I.

"Systems of Phase and Doppler Measurements in a Mobile Radio
Ionosphere Complex"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl.
Sekts. 3 (Tenth All-Union Conference on the Propagation of Radio
Waves; Report Theses; Section 3--collection of works) "Nauka,"
1972, pp 109-113 (from RZh--Radiotekhnika, No 10, 1972, Abstract
No 10A426)

Translation: A device for phase probing and a system for recording
the Faraday and Doppler effects in artificial earth satellite sig-
nals and rockets, including a series of multichannel receiver and
recorder devices operating at two, three, and four coherent fre-
quencies (20, 40; 24, 48, 144; 20, 30, 90, 180; 150 and 400 MHz,
and others), are described. The difference between the phase
probing system and those now known is the separation of the mea-
sured phase differences with a heterodyne frequency and consequent
narrow-band filtration. Resume
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1/2 019
UNCLASSIFIED
PROCESSING DATE--27NOV70
TITLE--THE CONTENT OF SIALIC ACID IN THE BLOOD SERUM OF PATIENTS WITH
ACUTE CHOLECYSTITIS -U-
AUTHOR--(031)-KHOKHLOV, N.F., NEYKOV, G.N., KAPARULINA, L.I.
COUNTRY OF INFO--USSR
SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 4, PP 79-82
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--LIVER DISEASE, BLOOD SERUM, ORGANIC SERUM, LEUKOCYTOSIS,
GALLBLADDER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/0736
STEP NO--UR/0497/70/048/004/0079/0082
CIRC ACCESSION NO--AP0131331
UNCLASSIFIED

2/2 019

CIRC ACCESSION NO--AP0131331

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS CARRIED OUT DYNAMIC STUDIES OF THE CONTENT OF SIALIC ACID IN THE BLOOD SERUM IN ACUTE CHOLECYSTITIS; BEFORE THE OPERATION, IN THE POSTOPERATIVE PERIOD AND AT DIFFERENT STAGES OF CONSERVATIVE THERAPY IN 47 PATIENTS. IT WAS FOUND THAT THE BLOOD SERUM LEVEL OF SIALIC ACID MORE DISTINCTLY THAN LEUKOCYTOSIS REFLECTS THE DYNAMICS OF THE INFLAMMATORY PROCESS AND THE DEGREE OF DESTRUCTIVE CHANGES IN THE WALL OF THE GALLBLADDER. IN POSTOPERATIVE COMPLICATION THE LEVEL OF SIALIC ACID RISES SHARPLY. ANALOGOUS CHANGES WERE ALSO OBSERVED IN PATIENTS TREATED CONSERVATIVELY. THERE WAS ALSO ESTABLISHED A RELATIONSHIP BETWEEN THE LEVEL OF SIALIC ACID, THE DURATION OF THE DISEASE AND FUNCTIONAL STATE OF THE LIVER. THE AUTHORS RECOMMEND THE SIALIC ACID TEST AS AN ADDITIONAL ONE IN ACUTE CHOLECYSTITIS.

FACILITY: KLINIKA GOSPITAL'NOY KHIRURGII
TSELINOGRADSKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

USSR

TODOROV, D. N., LYSYY, S. T., KAPATSYNA, G. G., KHANBEKOVA, N. S.

"Input Language for Graphic Information Processing System"

Prikl. Mat. i Programmir. [Applied Mathematics and Programming -- Collection of Works], No 8, Kishinev, Shtiintsa Press, 1972, pp 122-138 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V675).

Translation: The GRAFIK input language for computer and plotter software systems is described. The language includes geometric operators (cycle, turn, shift, symmetry, transform, calling of subroutine) and fragments (point, line, inscription, function, pen, linear and angular dimensions). The language also includes ALGOL-60 operators: attachment and transfer. An example of a program written in GRAFIK is presented.

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USSR

UDC: 539.1.074.3:535.853

KOVALEV, V. P., KAPCHIGASHEV, S. P., PAVLOV, L. P.

"Use of Scintillation Spectrometer with Stilbene Crystal for Dosimetry of Mixed Gamma-Neutron Radiation"

Dozimetriya i Radiats. Protsessy v Dozimetr. Sistemakh [Dosimetry and Radiation Processes in Dosimetric Systems -- Collection of Works], Tashkent, Fan Press, 1972, pp 188-192 (Translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 3, 1973, Abstract No 3.32.1382)

Translation: The possibility is studied of using a scintillation spectrometer with a stilbene crystal for dosimetry of neutrons and gamma radiation in mixed fields. The transfer factor $Q(E)$ from dose values in the detector material to dose absorption in a standard tissue is calculated. It is shown that for a broad range of energies of gamma quanta and neutrons, the value of $Q(E)$ for stilbene is practically constant. Absolute doses and ratios of doses of neutrons and gamma quanta from a (Pu-Be) source without a shield and with a shield of lead 5 cm thick are also studied. The possibility is discussed of using this scintillation dosimetry method for separate determination of the doses of intensive streams of neutrons and gamma radiation generated in the targets of a linear electron accelerator. 8 biblio. refs.

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USSR

UDC 539.12.08

KOVALEV, V. P., KAPCHIGASHEV, S. P., and PAVLOV, L. P.
 "Dosimetry of Neutron-Gamma Radiation With a Scintillation Spectrometer"

Moscow, Atomnaya Energiya, Vol 34, No 1, Jan 73, pp 7-10

Abstract: A study was made of the possibility of using a stilbene crystal scintillation spectrometer for the dosimetry of mixed neutron-gamma radiation. By applying the principle of dividing impulses by their form, the doses from neutrons and from gamma radiation can be determined separately. Experimental investigations revealed that the electron spectrum in the stilbene crystal in the vicinity of the dividing threshold of (g-n)-components can be described by the function of the differential electron spectrum

$$\frac{dN}{dE_e} (E_e) = C \cdot e^{-\alpha E_e} . \text{ In this case, only the expo-}$$

nential index α changes in the investigated 0.2-4.5-Mev energy range of gamma-quanta. Measurements were made to determine the radiation characteristics of a Pu-Be neutron source and a source of mixed radiation from a linac. It is shown that the use of 50-cm iron shielding results in the creation of a radiation field in which the magnitude of the neutron component is equal to twice that of the gamma component. Four figures, three formulas, two tables, seven bibliographic references.

1/1

USSR

UDC:621.313.12:539.172.12

BOL'SHOV, V. I., DUBININ, A. A., DMITRIYEV, V. M., KAPCHIGASHEV, S. P., KON'SHIN, V. A., MATUSEVICH, YE. S., POLIVANSKIY, V. P., PUPKO, V. Ya., REGUSHEVSKIY, V. I., STAVISSKIY, Yu. Ya., and YUR'YEV, Yu. S.

"Physical Investigation of the Target in an Electronuclear Neutron Flux Generator"

Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, pp 388-392

Abstract: Fluxes of thermal neutrons on the order of 10^{17} - 10^{18} n/cm².sec open new possibilities for investigations in many areas of science and technology. There is great interest in the study of the possibility for increasing neutron fluxes by using the process of multiple neutron birth upon interaction of nucleons with energies in the hundreds of MeV with heavy nuclei. This article presents the results of experiments and calculations concerning the neutron-physical characteristics

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USSR

BOL'SHOV, V. I., DUBININ, A. A., DMITRIYEV, V. M., KAPCHIGASHEV, S. P., KON'SHIN, V. A., MATUSEVICH, Y. E. S., TOLIVANSKIY, V. P., TUPKO, V. Ya., REGUSHEVSKIY, V. I., STAVISSKIY, Yu. Ya., YUR'YEV, Yu. S., Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, pp 388-392

of the target in an electronuclear device for the generation of neutron fluxes. The yield of neutrons and distribution of the number of reactions in a heavy target and moderator are measured. The space-energy distribution of neutron flux in the moderator is calculated and the accumulation of transuranium elements in a system with high neutron flux is computed.

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- 54 -

USSR

UDC 621.73.049.75:776

KAPELEVICH, I. I., KONONOVICH, A. Yu., SOSIDKO, V. V., ANISIMOV, B. K.

"A Device for Making Printed-Circuit Phototemplates"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 24, Soviet Patent No 277896, class 21, filed 24 Mar 69, published 5 Aug 70, p 53

Translation: This Author's Certificate introduces a device for making printed-circuit phototemplates. The device contains a movable table mounted on a stand. The table is equipped with a drive mechanism for shifting it along two mutually perpendicular coordinate axes, and a magazine for holding a glass plate covered with a layer of metal. The device also contains a stationary working head with a scribe which removes the layer of metal in accordance with a predetermined program, and a viewing device made in the form of a microscope. To improve the accuracy of inspection, the microscope takes the form of a periscope with the objective lens under the glass plate, the optical axis of this lens coinciding with the axis of the scribe.

1/ 1

USSR

UDC 612.171+612.273

KAPEL'KO, V. I., Laboratory of Experimental Cardiology, Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR

"Contractility of Isolated Papillary Muscles From the Left Ventricle of Rats Adapted to High-Altitude Hypoxia"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 41, No 12, 1970, pp 1,787-1,793

Abstract: After 6 weeks of adaptation of rats in a pressure chamber to a simulated altitude of 6 km (5 hours daily, 6 days a week), the maximum force of contraction of the papillary muscles of the left ventricle in Krebs' solution at 30°C increased by 30% compared to the control. The myocardium of the adapted animals retained a greater force of contraction when the frequency increased and was sensitive to tyramine. An increase in the simulated altitude to 7 km and lengthening of the period of exposure by 2 weeks led to the disappearance of the above differences in myocardial function between the adapted and control animals.

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USSR

UDC: 612.172-06:615.273.2

NOVIKOVA, N. A., and KAPEL'KO, V. I., Laboratory of Experimental Cardiology,
Institute of Normal and Pathological Physiology, Academy of Medical Sciences
USSR, Moscow

"Dynamics of Myocardial Contractility During and After Adaptation to High-Altitude
Hypoxia"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 70, No 11, Nov 70,
pp 30-32

Abstract: Rats were conditioned to moderate hypoxia (6000 m) in a pressure chamber for 8 weeks. The conditioning enlarged the heart and increased its functional capabilities as measured by the maximum force of myocardial contraction and the index of contractility. A similar period of conditioning at a higher simulated altitude (7300 m) resulted in even greater hypertrophy and a corresponding increase in the maximum force of myocardial contraction. Six weeks after the conclusion of the training period, the ventricular hypertrophy returned to normal and contractility was the same as in the controls.

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USSR

UDC 629.735.33:621.792.02/08

Tekhnologiya skleivaniya detaley v samoletostroyenii (Technology of Adhesive Bonding in Aircraft Construction), by I. I. Kargelyushnik, I. I. Mikhalev and B. D. Iydel'man (deceased), Moscow, Mashinostroyeniye, 1972, 224 pp, illus, biblio, 4,500 copies printed

Describes technology of adhesive bonding of metals and nonmetallic structural materials to guarantee high strength, long service life, hermeticity, and good corrosion resistance of the joined surfaces. Gives the physical-mechanical and technological characteristics of adhesives, describes types of adhesive compounds used in aircraft construction. Emphasis is put on the choice of the most rational technological processes of adhesive bonding, production equipment, preparation and testing of adhesives, quality control and operational safety during work with adhesives.

The book is intended for a wide circle of engineering and technical personnel and may also be used as a practical manual for those responsible for technological processes involving the use of adhesives.

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USSR

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Tekhnologiya skleivaniya detaley v samoletostroyenii (Technology of Adhesive Bonding in Aircraft Construction), by I. I. Kapelyushnik et al, Moscow 1972..

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Chapter IX. Safety Procedures in Work With Adhesives	219
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USSR

UDC: 621.372.8:621.315.61

BERGER, M. N., KAPILEVICH, B. Yu., Active Members of the Scientific and Technical Society of Radio Engineering, Electronics and Communications

"Use of Ceramic Heat-Transfer Dielectrics in Ferrite Microwave Devices"

Moscow, Radiotekhnika, Vol. 26, No 5, May 71, pp 79-83

Abstract: This paper discusses the effect which filling a waveguide with beryllium oxide has on the electrodynamic parameters of a microwave device (losses, phase shift, etc.) as well as the thermal conditions of ferrite plates when beryllium oxide is used. The use of beryllium oxide in a discrete ferrite phase shifter is considered by way of example. Analysis shows the effectiveness of using heat-transfer ceramic dielectric in high-power microwave devices. The average operating power of a ferrite device can be considerably increased with no change in electrical characteristics when a heat-transfer dielectric is used.

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1/2 007
TITLE--SOLUTION OF ITERATIVE CAUCHY PROBLEMS AS SERIES OF BASIS FUNCTIONS
-U-
AUTHOR--KAPILEVICH, M.B.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK. SSSR, VOL. 185 NO. 1, P. 28-31 (MARCH 1969)
DATE PUBLISHED---MAR70
SUBJECT AREAS--MATHEMATICAL SCIENCES
TOPIC TAGS--CAUCHY PROBLEM, SERIES, LINEAR OPERATOR, ITERATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/1715
CIRC ACCESSION NO--AT0133620
STEP NO--UP/0020/69/185/001/0028/0031
UNCLASSIFIED

2/2 007
CIRC ACCESSION NO--AT0133620 UNCLASSIFIED PROCESSING DATE--13NDV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EXTENSIVE LISTING OF SERIES
EXPRESSIONS FOR THE SOLUTION $U(x, s, a, b, c)$ OF THE CAUCHY PROBLEM: (SHOWN
ON MICROFICHE) CONST; x EQUALS $x(x)$ IS A LINEAR OPERATOR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--EFFECT OF HYDROGEN ON THE WELDABILITY OF PIPES FROM STEELS ALLOYED
WITH TRACE ADDITIVES -U-
AUTHOR-(103)-TARLINSKIY, V.D., KAPINOS, D.B., LOSEV, YU.F.
COUNTRY OF INFO--USSR
SOURCE--STROIT. TRUBOPUOVODOV 1970, 15(1), 19-20
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--WELDABILITY, STEEL PIPE, MICROALLOYING, HYDROGEN
EMBRIITTLEMENT, METAL CRACKING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/1840

STEP NO--UR/0095/70/015/001/0019/0020

CIRC ACCESSION NO--AP0118804

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118804
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. VARIOUS FORMULAS IN THE LITERATURE BASED ON THE C EQUIV. FOR THE ASSESSMENT OF WELDABILITY ARE CONSIDERED ONLY AS INDICATIVE, NOT ACCOUNTING FOR THE EXTREME EFFECTS OF TRACE ELEMENTS. THE USE OF SPECIFIED HEATING TEMP. PRIOR TO WELDING TO PREEMPT MICROCRACKING ALSO WAS UNCORRELATED. IN THE NEW WORK, THE PARTICULAR EFFECT OF H CONTENTS WAS SHOWN IN THE MODIFICATION OF THE REQUIRED PREHEATING TEMPS. AND THUS THE AVOIDANCE OF TOO RAPID CHILLING WITH A BETTER CRYSTD. JUNCTION; WITH INCREASE OF H, HIGHER TEMPS. WERE USED TO REDUCE H EMBRITTLEMENT. COMPREHENSIVE FORMULAS TO ACCOUNT FOR ALL FACTORS WERE FOR C EQUIV. $E_{SUBC} = C + (SI-30) + (MN-20) + (CU + NI + CR + MO) - 50 + (V + Nb + Ti) - 5 + 5B + (T-400) + (H-100)$, WHERE THE SYMBOL REPRESENTS PERCENT OF ELEMENT OR FOR H, CM PRIME3-100 G, AND T EQUALS WALL THICKNESS OF TUBES; THE CONDITIONAL PREHEATING TEMP. $T_{SUBC} = 1100E_{SUBC} - 400$ DEGREES. ACTUAL PREHEATING WAS PRESCRIBED FOR VALUES T_{SUBC} GREATER THAN 100 DEGREES. INCREASED H LEVEL WAS PREVENTED BY PREDESSICATION OF THE FLUX SHEATHED ELECTRODES, BUT OTHERWISE MIGHT RISE TO SIMILAR TO 10 CM PRIME3-100 G OWING TO THE TYPE OF SEAM, THE USE OF AUTOMATIC OR MANUAL METHODS, OR BY SERIAL WELDING. PLOTS FOR T_{SUBC} AGAINST H CONTENT FOR VARIOUS ADDNS. TO THE STEEL SHOWED A GENERALLY LINEAR BEHAVIOR IN ACCORDANCE WITH THE WEIGHTED FORMULA RELATIONS. THE NECESSITY FOR PREHEATING WAS SHOWN TO BE MOST FAVORABLE TO THE WELD STRENGTH WITH GAS SHROUDING.

UNCLASSIFIED

KAPINOS, V. M.

TECHNICAL TRANSLATION

PSIC-BT-23-735-72

ENGLISH TITLE: Determining Heat Transfer Coefficients with Built in
Alphacalorimeters

FOREIGN TITLE: Определяние Срединных Коэффициентов Теплообмена
Встроенными Ал'факалориметрами

AUTHOR: V. M. Kapinos, V. M. Pustovalov, and A. P. Rud'ko

SOURCE: Inzhenerno-Fizicheskoy Zhurnal, Volume 19, No. 2, 1970, pp 235-241.

Translated for PSIC by Eric Penbody, Leo Kanner Associates

NOTICE

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1/3 010 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--EFFECT OF THE NONHORIZONTAL POSITION OF A SIEVE PLATE ON THE
EFFECTIVENESS OF MASS TRANSFER UNDER FRACTIONAL DISTILLATION CONDITIONS
AUTHOR--(03)-KLIMOV, A.G., KAPITALNYY, V.G., POPLAVSKIY, YU.V.
COUNTRY OF INFO--USSR
SOURCE--GIDROLIZ. LESOKHIM. PROM. 1970, 23(2), 13-15
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--MASS TRANSFER, FRACTIONAL DISTILLATION, BUTANOL, ACETATE,
VAPOR PRESSURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1995/1220 STEP NO--UR/0328/70/023/002/0013/0015
CIRC ACCESSION NO--AP0116683
UNCLASSIFIED

2/3 010 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0116683

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BECAUSE OF THE DISCREPANCY EXISTING BETWEEN THE OFFICIAL TOLERANCE VALUES FOR THE DEGREE OF DEVIATION OF PLATES FROM THE HORIZONTAL POSITION (TILTING, MEASURED IN MM) AND THE PRACTICAL POSSIBILITY OF ADJUSTMENTS UNDER INDUSTRIAL CONDITIONS, STUDY WAS MADE OF THE EFFECT OF TILTING ON MASS TRANSFER DURING RECTIFICATION TO OBTAIN DATA FOR A MORE REALISTIC APPROACH TO THE PROBLEM OF TOLERANCES. AN INDUSTRIAL SIEVE PLATE RECTIFICATION COLUMN (AS THE MOST SENSITIVE TO TILTING) WAS USED FOR SEPG. A MIXT. CONTG. 11 WT. PERCENT BUOH AND 89 WT. PERCENT BUOAC. COLUMN CONTROL INSTRUMENTS MADE IT POSSIBLE TO MAINTAIN A CONST. VAPOR PRESSURE IN THE REBOILER AND TO CONTROL THE TEMP., THE PRESSURE GRADIENT, AND THE AMT. OF REFLUX. THE EFFECTIVENESS OF THE MASS TRANSFER WAS EVALUATED FROM THE OVERALL EFFICIENCY COEFF. (RATIO OF THE THEORETICAL TO THE ACTUAL NO. OF PLATES), AND THE EFFECTIVENESS OF THE INDIVIDUAL PLATES FROM THE TEMP. PHASE COMPN. GRAPHS. ANY DEVIATION FROM THE HORIZONTAL POSITION OF A PLATE AFFECTS THE MASS TRANSFER ADVERSELY, ALTHOUGH THIS EFFECT IS LESS MARKED AT HIGHER VAPOR FLOW VELOCITIES. IN DETG. THE REQUIRED TOLERANCES, TECH. DIFFICULTIES RELATED TO INDUSTRIAL OPERATION OF A COLUMN MUST BE CONSIDERED, SINCE THE COLUMN OPERATES AT VARYING LOADS OF VAPOR AND LIQ. (IT CONSTITUTES A LINK IN CONNECTED EQUIPMENT). THUS, THE TOLERANCES SHOULD BE ESTABLISHED BY CONSIDERING CONSTRUCTION FACTORS; IN DETG. THE NO. OF PLATES A CORRECTION SHOULD BE MADE FOR THE WORST POSSIBLE OPERATING CONDITIONS.

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UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116683

ABSTRACT/EXTRACT--THE CORRECTION CAN BE CALCD. FROM THE RELATION OBTAINED BETWEEN THE COLUMN EFFICIENCY, THE TILT OF THE PLATES, AND THE PERCENT REDN. OF MASS TRANSFER. A 5 MM TILT IS FULLY ADMISSIBLE; IN SUCH CASE THE REDN. OF EFFICIENCY CAN BE COMPENSATED BY INSTALLATION OF A FEW ADDNL. PLATES.

UNCLASSIFIED

KAPITANENKO, A.M.

RADIOTELEMETRY STUDIES IN SOME GASTROINTESTINAL DISEASES

UDC 616.33.002.4616.342.0021-07

Article by A.M. Kapitanenko and V. I. Yezonin, Moscow, Voenno-Meditsinskii Zhurnal, No 7, 1972, pp 92-95]

The first Soviet radiotelemetry apparatus for gastroenterology was designed by the engineer A. I. Sorin and Academician Ye. B. Bobak. Radiocapsules (miniature radio transmitters) are now available for determining the pH, pressure, and temperature of the gastrointestinal tract.

We used a complete radiotelemetry apparatus to investigate gastric acidity in 243 patients: 56 with gastric ulcer, 169 with duodenal ulcer, 38 with different forms of chronic gastritis. The distribution of patients by age and duration of the disease is shown in Table 1. We maintained conditions to ensure comparability of the results obtained in the individual patients. The pH was measured in specific places in the digestive tract. The capsules were secured in the lumen of the body of stomach with alkathread (50 to 55 cm from the teeth). The intragastric pH was recorded in basal condition and after a test breakfast. The examination usually took a total of 2 1/2 to 3 hours. The patients tolerated the procedure well.

Table 1

Diagnose	Number of patients examined	Males		Females		Age						Duration of disease								
		10-40 years		41-50 years		51-60 years		61-70 years		71-80 years		10-5 years		6-10 years		11-15 years		16-20 years		more than 20 years
Duodenal ulcer	169	127	72	35	49	38	7	--	--	--	--	50	43	37	3	16	2	2	2	2
Gastric ulcer	56	42	14	19	20	11	3	3	3	3	3	22	14	10	2	2	2	2	2	2
Chronic gastritis	38	29	9	6	13	14	4	1	1	1	1	12	3	7	3	13	2	2	2	2
Total	263	198	45	80	82	63	14	4	4	4	4	84	60	54	8	37	6	6	6	6

File not found - 102 -
#6, 1972

Patients of the control group (57 persons) did not get analgesic at all. In patients of the experimental group a combination with other therapeutic measures brought about a more rapid improvement of the general feeling occurred much quicker than in the control group. Thus, the epigastric pain of them was already reduced in the first six days (in the control group on the tenth day), and it completely stopped on the 12th day (in the control group on the 17th day). Vomiting ceased in the main group on the 3rd day in the control group on the 6th

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day. At the second x-ray examination in 70.9 % of the patients who received metacil the niche disappeared after 30 days, in 22.7% after 45 days, and in only 6.4% did the niche decrease in size without complete disappearance. In the control group the ulcer cicatrized in 50% of the patients after 30 days, in 30% after 45 days, and in 20% it was somewhat decreased.

The therapeutic effect of metacil was manifested in the majority of cases on the background of an ineffective therapy with generally known means. Thus, in 17 out of 22 patients, only after the employment of this preparation did a full healing of the ulcer occur. It is particularly indicated in gastric UD, since it has a good anesthetic effect, and it reinforces regeneration in the ulcer. In 50 cases out of 55, cicatrization of the ulcer was noted.

We also studied the effect of metacil upon the chief functions of stomach. Analysis of the findings about the action of metacil upon the secretory, acid-forming, and motor functions was carried out before and after treatment of 48 patients with UD of the stomach, and of 46 with duodenal UD. Postinopren exertion in the urine was determined by the method of V.S. Tugulakov (1962). After a treatment course, it dropped from an average of 3.4 to 1.4 units per hour. Reduction of the hourly turgor (sinks) of secretion was also noted. When the ulcer was localized in the stomach, the acid-forming function had a tendency to normalization with an ulcerous defect in the duodenum no regular changes were noted.

According to the findings of x-ray examinations and electro-gastrograms (96 patients) the motor and evacuatory stomach functions had a marked tendency to normalization under the influence of metacil. At the end of treatment, the electro-gastrograms revealed cessation of voltage, transition of hyper- and dyskinesia into normo- and hypokinesia. Only in 16 patients who had duodenal UD, and in 2 with gastric UD, did the motor function remain elevated. They also had pain syndrome for a long time. Probably the anesthetic effect of metacil in UD, which we and other authors noticed (A.L. Lands and coworkers, 1966; I.O. Neymark, N.P. Semanova, 1966 and others), is related to some extent to the effect of the preparation upon the motor function of the stomach. Thus, clinical findings corroborate that the employment of metacil normalizes the basic functions of stomach, and quickens repair.

As is well known, metacil is used for the stimulation of leukocytes and erythrocytes (N.V. Lazarev, G.I. Felistovich, 1959, and others). We studied the effect of metacil upon the peripheral blood picture in 111 patients (164 persons). The hemogram indices before treatment were within normal physiological limits in all patients. After the use of metacil, regular and statistically significant changes were not found in the morphological composition of the peripheral blood and in the sedimentation rate. Our findings agree with the results of examinations made by I.A. Sytunova and co-authors (1966).

Usually, all patients tolerated the preparation well, only in four (at a dose of 1 gram 3 t.p.d.) was there pruritus and dermatitis of a minor degree. Reduction of a single dose to 0.5 g in two cases resulted in the elimination of such side effects. In one patient pruritus and dermatitis ceased after dimedrol taking, and in one after changing the dose. A slight allergic allergy was observed also earlier at taking other medicinal agents.

The remote results of treatment were studied by us in 102 patients for the length of 3 months to 4 years. As an evaluation criterion, the clinical and radiological findings served. In 18.6% of the cases we observed recurrences of gastric and duodenal UD after one treatment course with metacil at different intervals.

Acc. Nr: **AT0043962**

Ref. Code: **UR0000**

PRIMARY SOURCE: **Geofizicheskiy Sbornik, Kiev, 1970, Nr 33,**
pp 39-42

**STRUCTURE OF THE EARTH'S CRUST IN THE MOUNTAIN CRIMEA
ACCORDING TO DISPERSION OF THE PHASE VELOCITY
OF THE RAYLEIGH WAVES**

S. A. Kapitanova

(Institute of Geophysics, Academy of Sciences, Ukrainian SSR,
Seismic Station «Simferopol»)

Summary

The structure of the earth crust of the Mountain Crimea is studied by the method of dispersion of the phase velocity of the surface Rayleigh waves according to the observations at the seismic stations «Simferopol», «Yalta», «A'ushla». The stations are equipped with vertical apparatuses of the general type «CK». The experimental curves

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of the dispersion of the phase velocity were plotted for nine best records of the surface Rayleigh waves which further were compared with theoretically calculated dispersion curves. The periods of the observed waves were in the range from 14 up to 37 sec, and phase velocity varied from 3.25 up to 3.78 km/sec.

The best approximating model proved to be model «201» (Savarensky-Glasko-Gravit), the parameters of which are close to the real parameters of the Mountain Crimea crust found by the ASS. As a result the thickness of the earth crust reaches 40-45 km, the thickness of the layers composing it being equal

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USSR

UDC 621.52:533.59:541.183

KAPITANSKIY, V.R., LIVSHITS, A.I., METTER, I.M.

"Diffusion Of Hydrogen Through Palladium At Low Pressures And Evacuation Of Hydrogen Through A Palladium Partition In The System Of A Hydrogen Generator"

V sb. Materialy nauch.-tekhn. konf. Leningr. elektrotekhn. in-ta svyazi. Vyb. 4 (Materials Of Scientific-Technical Conference Of Leningrad Electrical Engineering Institute Of Communications. Issue 4 -- Collection Of Works), Leningrad, 1971, pp 166-170 (from RZh:Elektronika i yeye primeneniye, No 4, April 1972, Abstract No 4A49)

Translation: At a temperature of 520°C and pressure of $2 \cdot 10^{-5}$ mm of mercury, nonactivated palladium 0.3-mm thick gives an exhaust output of 0.1 l/sec per 1 cm^2 of the surface. The design of a nonactivated pump is described which gives an exhaust rate of ~ 3 l/sec at a temperature of $\sim 500^{\circ}\text{C}$ and a pressure of $3 \cdot 10^{-4} \div 5 \cdot 10^{-5}$ mm of mercury. On the whole the pump spent ~ 300 hours at the temperature range $500\text{--}700^{\circ}\text{C}$, during which all of its parameters remained unchanged. 6 ref. A.F.

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USSR

UDC 621.317.335.3

GLADYSHEV, G. I., KAPITKIN, B. T.

"Method of Measuring ϵ and $\text{tg } \delta$ of Liquid Dielectrics in the Superhigh Frequency Range"

Elektron. tekhnika. Nauchno-tekhn. sb. Kontrol'no-izmerit. apparatura (Electronic Engineering. Scientific and Technical Collection. Measuring and Control Equipment), 1970, vyp. 3 (21), pp 15-19 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A293)

Translation: A version of the resonator method is proposed for measuring ϵ and $\text{tg } \delta$ of liquids with small losses. In this method a volumetric resonator with a H_{01n} wave is partially filled by the investigated liquid dielectric.

Direct movement of the contactless plunger in the liquid dielectric insures high accuracy of measuring the dielectric constant. The frequency filling of the resonator volume and use of the transforming properties of the separating dielectric plate permit expansion of the measurement range of the dielectric losses by comparison with the methods of total filling.

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USSR

UDC: 621.317.374

BATURA, V. G., KAPITKIN, B. T.

"A Resonator for Measuring the Dielectric Parameters of Sheet Materials"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratztsy, Tovarnyye Znaki, No 29, 1970, Soviet Patent No 281571, Class 21, filed 15 Feb 67, p 61.

Abstract: This Author's Certificate introduces a resonator for measuring the dielectric parameters of sheet materials. The device contains a cylindrical resonator with H_{01n} -wave with a slot, and also systems for exciting and tapping SHF energy and a movable short-circuit piston. As a distinguishing feature of the patent, measurement precision is improved by filling the working cavity of the cylindrical resonator with a liquid dielectric whose dielectric parameters are close to those of the dielectric sheet being studied.

USSR

UDC: 621.317.335.3

KAPITKIN, B. T.

"Comparative Evaluation of Cavity Methods of Measuring the Permittivity and Loss Tangent of Liquids"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 95-96 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A367)

Translation: Methods utilizing cavity resonators -- the most extensively used methods for measuring the permittivity and loss tangent of liquids at frequencies above 30 GHz -- are differentiated with respect to the type of cavities used, methods of filling the cavities with the liquid, and also the measurement procedure. A table is given which presents basic conclusions of an analysis made of several methods of measurement, as well as the results of experimental verification of these methods. Besides measurement errors, recommended wavelength ranges are indicated as well as possible values of the coefficient A which characterizes the sensitivity of the method to changes in permittivity and loss tangent. The methods are compared. Bibliography of ten titles. E. L.
1/1

1/2 009 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--GIANT DIPOLE RESONANCE ON NICKEL ISOTOPES -U-

AUTHOR--(05)-GORYACHEV, B.I., ISHKANOV, B.S., KAPITONOV, I.M., PISKAREV,
I.M., SHEVCHENKO, V.G.
COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(2), 252-9

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, PHYSICS

TOPIC TAGS--NICKEL ISOTOPE, INTEGRAL CROSS SECTION, PARTICLE PRODUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/0367

STEP NO--UR/0367/70/011/002/0252/0259

CIRC ACCESSION NO--AP0048639

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0048639

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE EFFECTIVE CROSS SECTIONS OF PHOTO N PRODUCTION FOR PRIME58 NI AND PRIME60 NI IN THE DOMAIN OF THE GAUNT DIPOLE RESONANCE ARE DESCRIBED. THE INTEGRAL CROSS SECTION UP TO 30 MEV IS 310 FOR PRIME58 NI AND 620 MEV-MB. FOR PRIME60 NI, TOTAL ABSORPTION CROSS SECTIONS FOR THE ISOTOPES ARE CONSTRUCTED AS THE SUMS OF THE PHOTO N AND PHOTO P CROSS SECTIONS. THE VALUES DO NOT AGREE WELL WITH THOSE COMPUTED BY VARIOUS MODELS. FACILITY: INST. YAD. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--PHOTOPROTON CROSS SECTIONS FOR NUCLEI WITH (1F-2P) SHELL -U-
AUTHOR--(05)-ISHKHANOV, B.S., KAPITONOV, I.M., PISKAREV, I.M., SHEVCHENKO,
V.G., SHEVCHENKO, O.P. *K*
COUNTRY OF INFO--USSR
SOURCE--YAD. FIZ. 1970, 11(3), 485-91
DATE PUBLISHED-----70
SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, PHYSICS
TOPIC TAGS--PHOTONUCLEAR REACTION, PROTON SPECTRUM, EXCITATION CROSS
SECTION, INTEGRAL CROSS SECTION, NICKEL ISOTOPE, CHROMIUM ISOTOPE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/1053 STEP NO--UR/0367/70/011/003/0435/0491
CIRC ACCESSION NO--AP0110743
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0110743

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHOTO-P CROSS SECTIONS WERE MEASURED FOR PRIME52 CR, PRIME58 NI, AND PRIME60 NI FROM THRESHOLD TO 30 MEV. THE P WITH ENERGIES GREATER THAN 1 MEV WERE REGISTERED. A NO. OF MAX. WERE FOUND. THE INTEGRAL CROSS SECTIONS FOR PRIME52 CR, PRIME58 NI, AND PRIME60 NI WERE 240,570, AND 320 MEV-MB, RESP. THE ANOMALOUSLY HIGH VALUE OF THE PHOTO-P PRODUCTION CROSS SECTION FOR PRIME58 NI, AS WELL AS THE SHIFT OF THE CENTERS OF GRAVITY FOR THE PHOTO-P CROSS SECTIONS TOWARD HIGHER EXCITATION ENERGIES, AS COMPARED TO THE PHOTO-N CROSS SECTION WHICH WAS OBSERVED FOR PRIME51 CR AND PRIME60 NI, CAN BE EXPLAINED BY THE INFLUENCE OF THE ANALOG STATES. FACILITY: INST. YAD. FIZ., MOSK. GOS. UNIV., MOSCOW, USSR.

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70
 CIRC ACCESSION NO--AP0110769
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHOTO-N REACTIONS ON PRIME92 MO
 AND PRIME98 MO ARE INVESTIGATED BY USING A 35-MEV BETATRON. CROSS
 SECTIONS OF THE REACTION (GAMMA, TN) EQUALS CROSS SECTIONS OF (GAMMA,
 N), PLUS 2 (CROSS SECTION OF (GAMMA, 2N)) PLUS CROSS SECTION OF (GAMMA,
 NP); THERE ARE SIMILAR TO 15 RESONANCES FOR EACH CROSS SECTION. THE
 WIDTHS OF THE GIANT RESONANCES IN THE REACTION (GAMMA, TN) ON THE
 PRIME92 MO AND PRIME98 MO NUCLEI ARE 5 AND 7 MEV, RESP. FOR THE
 REACTIONS (GAMMA, N) PLUS (GAMMA, NP), THE VALUES OF THE INTEGRAL CROSS
 SECTIONS FOR PRIME92 MO AND PRIME98 MO ARE 1.12 PLUS OR MINUS 0.11 AND
 1.10 PLUS OR MINUS 0.11 MEV-B, RESP. EXPTL. RESULTS ARE COMPARED TO
 THEORETICAL VALUES. THE EXPTL. VALUES SHOW A GREATER NO. OF RESONANCES.
 THE GREATEST DISCREPANCY BETWEEN THEORY AND EXPT. IS FOUND AT 24-30
 MEV. FACILITY: INST. YAD. FIZ., MOSK. GOS. UNIV., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.396.96:621.371

KAPITANOV, V. A., MEL'NICHUK, Yu. V., CHERNIKOV, A. A.

"Spectral Form of Radar Signals from Precipitation"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl.
(Tenth All-Union Conference on the Propagation of Radio Waves;
Report Theses--collection of works) "Nauka," 1972, pp 373-376 (from
RZh--Radiotekhnika, No 10, 1972, Abstract No 10G11)

Translation: The spectral shape of signals scattered by precipitation of various types was experimentally investigated. Measurements were made with the previously described radar polarimeter (see Izv. AN SSSR. Fizika atmosfery i okeana -- Atmospheric and Oceanic Physics -- 7, No 1, 1971) in the range of 3.2 cm for small local angles (up to 6°) in precipitation of average intensity. It was established that the spectra have a near-Gaussian form. The effect of various amplitude phenomena and rapid fluctuations in the velocities of the diffusers on the form of the high-frequency portion of the signal spectrum is estimated. N. S.
1/1

KAPITONOV V.A.

ATO032096

NUCLEAR SCI. ABST. 2-70 UR 0000

6510 (NP-tr-1961) EXPERIMENTS WITH STRONG SHOCK-
WAVES ON "VODA I." KapitonoV, V. A.; Kornilov, V. A.; Lagu-
nov, V. M.; Nesterikhin, Yu. E.; Papyrin, A. N.; Ponomarenko,
A. G.; Federov, V. M. Akademiya Nauk SSSR, Novosibirsk. (In-
stitut Yadernoi Fiziki). Translated for Culham Lab., Abingdon,
Eng., from Preprint No. 238. 11p. (CTO-655). Dep. CFSTI
(U. S. Sales Only).

Experiments are described on the excitation of strong collision-
less shock waves ($M \geq 5$) with subsequent containment of the
plasma by the magnetic field of the shock loop. A magnetic piston
of ~ 20 kOe was produced within $\sim 100 \times 10^{-8}$ sec by a current
generator forming a long line with water insulation for 250 keV
and wave impedance of 1Ω . (auth)

19700282

USSR

UDC 577.154

KAPITONOVA, L. S., RODIONOVA, N. A., and FENIKSOVA, R. V., A. I. Bakh
Institute of Biochemistry, USSR Academy of Sciences, Moscow

"Purification and Properties of Pectate-Trans-Eliminase of *Clostridium
felsineum*"

Moscow, Biokhimiya, No 5, 1973, pp 1054-1061

Abstract: Pectate-trans-eliminase was obtained from the culture fluid of the
anerobe *Clostridium felsineum* No 5, by precipitation with alcohol, separation
on CM-cellulose, and filtration through Sephadex-G-200. The preparation,
purified 225 times and homogeneous in polyacrylamide gel electrophoresis, had
a molecular weight of 105,000. It was highly active at pH 8 to 10, especi-
ally at pH 8.5, and inactive at pH 4 to 6. CaCl_2 , CoCl_2 , CdCl_2 , SrCl_2 , and
 MnCl_2 increased the activity of the enzyme. EDTA inactivated it while ZnCl_2 ,
 BaCl_2 , and MgCl_2 inhibited it. Study of the substrate specificity of trans-
eliminase showed it to be most active against pectic acid, much less active
against partly esterified pectin, and inactive against completely esterified
pectic acid. The purified enzyme macerated potato tuber and flax stem tissues.
Its specific macerating activity was 100 times greater than in the culture
fluid.

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USSR

UDO 621.314.1:621.382.3

STAROBINSKIY, N.M., LIBERZON, K.SH., KAPITONOVA, L.M.

"Magnetic-Amplifier Inverters"

Nauch. tr. vuzov Povolzh'ya (Scientific Works Of Higher Educational Institutions Of Povolzh'ye [Land Along The Volga]), 1971, Issue 6, pp 71-80 (from RZh:Elektronika i yeye primeneniye, No 7, July 1972, Abstract No 7B574)

Translation: The circuits of a magnetic amplifier (MA) with an inverter transistorized power supply (MAI) are considered. A classification is presented of MAI circuits with respect to the form of the MA, which makes it possible to obtain the characteristics: load current, frequency--current controls, which reveal new possibilities for the use of MA making it possible to change from ordinary control characteristics in an analogous form to discrete control characteristics. Circuits are considered of MAI on the base of an ordinary MA with an exterior feedback, with self-saturation, in an auto-modulation regime. Analytical expressions are derived for the control characteristics (dependence of frequency on input signal), and an analysis is made of the operation of MAI in a circuit with exterior feedback with various feedback factors. During an analysis of MAI with self-saturation, recommendations are made for a shunting semiconductor diode MA with effective resistances. In order to assure a stable relay regime, the introduction of a supplementary feedback is recommended. As a result of experimental

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STAROBINSKIY, N.M., et al. Nauch. tr. vuzov Povolzh'ya, 1971, Issue 6, pp 71-80

studies of MAI operating in an auto-modulation regime, the effective frequency range of the given type of circuits (0.5--100) kHz is determined. An expression is derived for determination of the percentage modulation as a function of the magnitude of the capacitance and control current. Oscillograms are presented of voltage curves at the output of the inverter and at the output of the frequency discriminator. It is shown that the MAI makes it possible to obtain in discrete form, in the form of frequency dependence, the control current of practically all functional dependences characteristic of MA. 8 ill. 6 ref. A.M.

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- 3 -

USSR

UDC: 669.017.11.295.292

SHUSHKANOV, V. M., MOROZ, L. S., OBUKHOVSKIY, V. V., KAPITONOVA, N. P.,
IVANOVA, N. V., Leningrad

"Solubility of Vanadium in α Titanium"

Izvestiya Akademii Nauk SSSR, No 4, Jul-Aug 73, pp 221-224.

Abstract: Considering that vanadium is one of the most important alloying elements used in the production of titanium alloys, this work attempts to establish the true limit of solubility of vanadium in α titanium. The paramagnetic susceptibility and modulus of elasticity of four alloys in the Ti-V system containing 0.50, 0.92, 1.40 and 2.30 wt. % vanadium were studied in various initial states. Methods were selected for high sensitivity to changes in electron structure of the alloys studied and interatomic bonding forces, hoping to record the initial stage of the formation of a second phase. The studies showed characteristic breaks on composition versus property curves of the alloys at 0.92 wt. % V, indicating changes in the interatomic bond energies and electron structure at this point. X-ray structural analysis showed that the breaks on the composition versus property curves correspond to appearance of the β phase. Thus, the equilibrium limit of

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USSR

Shushkanov, V. M., Moroz, L. S., Obukhovskiy, V. Y., Kapitonova, N. P.,
Ivanova, N. V., Izvestiya Akademii Nauk SSSR, No 4, Jul-Aug 73, pp 221-224.

solubility of vanadium in α titanium is not over 0.9 wt. % at 650-700° C.

USSR

UDC 8.74

KAPITONOVA, YU. V.

"Problems of Organizing Specialized Program Systems"

V sb. Mat. obespecheniye ETsVM (Digital Computer Software -- collection of works), Kiev, 1972, pp 252-267 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V607)

No abstract

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1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--PROBLEMS ON AUTOMATION OF COMPUTER AND SYSTEM DESIGN -U-
AUTHOR--(03)--GLUSHKOV, V.M., KAPITONOVA, YU.V., LETICHEVSKY, A.A.
COUNTRY OF INFO--USSR
SOURCE--AUTOMATICA (GB), VOL. 6, NO. 2, P. 333-42, MARCH 1970
DATE PUBLISHED----MAR 70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--AUTOMATIC COMPUTER PROGRAMMING, COMPUTER AIDED DESIGN,
COMPUTER DESIGN, COMPUTER TECHNOLOGY, ALGORITHM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/0106 STEP NO--UR/0000/70/006/002/0333/0342
CIRC ACCESSION NO--AP0123878
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123878

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS NOTED THAT COMPLETE SYNTHESIS OF COMPUTER DESIGN IS FEASIBLE AND CONSIDERABLE PROGRESS HAS BEEN MADE IN THIS DIRECTION, BUT IT IS NOT YET PRACTICAL. DIFFICULTIES AND COMPLEX PROBLEMS REMAIN AND THEY ARE DISCUSSED ALONG WITH THE BASIC DESIGN STAGES WHICH ARE DESIGNATED SYSTEM, LOGICAL AND TECHNICAL, LANGUAGE PROBLEMS ARE CONSIDERED AS WELL AS PROGRAMS WHICH HAVE BEEN DEVELOPED IN THE INSTITUTE OF CYBERNETICS IN KIEV FOR DESCRIBING COMPUTER MODELS AND COMPUTER STRUCTURES IN THE SYSTEM AND LOGICAL STAGES OF DESIGN. OPTIMIZATION PROBLEMS IN COMPUTER SYNTHESIS ARE COMPLEX AND OPTIMIZATION MUST BE DONE ON A SUBSYSTEM, SUBOPTIMAL BASIS AT THE PRESENT TIME ALTHOUGH RECENTLY DEVELOPED SPECIAL ALGORITHM TRANSFORMATIONS AND MICRO PROGRAMS HAVE BEEN FOUND VERY USEFUL. FINALLY, VARIOUS STEPS AND PROBLEMS WHICH MUST BE ENCOUNTERED IN AN AUTOMATED DESIGN SYSTEM ARE DEFINED, AND DISCUSSED. EXAMPLES ARE GIVEN IN APPENDICES TO ILLUSTRATE VARIOUS CONCEPTS WHICH ARE REPRESENTED IN THE PAPER.

UNCLASSIFIED

K
USSR

KAPITSA, P. L., Physics Laboratory, Academy of Sciences USSR

"Thermonuclear Reactor With Plasma Column Hovering Freely in a High-frequency Field"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 58, No 2, Feb 70, pp 377-386

Abstract: A previous article by the author reported the observation of a freely hovering discharge in a resonator with a high-frequency field. If the resonator was filled with deuterium, the discharge had a columnar shape. The properties of the plasma of such a column were studied in detail, mainly by spectrographic methods. The present article studies the question of the possibility of using the plasma of such a column discharge for a controlled thermonuclear reactor. Calculations are made to determine the size necessary for the reactor to be a source of useful electric energy. The reactor will consist of the high-frequency column discharge, placed in a constant longitudinal magnetic field, with radial magnetoacoustic oscillations excited therein.

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USSR

KAPITSA, P. L., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki,
Vol 58, No 2, Feb 70, pp 377-386

The calculations are divided into two parts. First, the energy balance of the thermonuclear reaction is considered and the dimensions of the column discharge and the temperature of its plasma are established. The next question considered is the practicability of thermally insulating a column discharge of the size needed. The final problem is to establish the size of a "closed" machine whereby the energy obtained from the nuclear reaction will be great enough to cover all energy consumption necessary to maintain the column discharge. A design sketch for such a "closed" reactor is included. The purpose of the calculations is not to find the optimal reactor design but rather to show that there are sufficient theoretical and experimental data to calculate the reactor size and determine its energy indices.

The results indicate that a thermonuclear reactor of considerable power can be based on a column discharge. Further theoreti-

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USSR

KAPITSA, P. L., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki,
Vol 58, No 2, Feb 70, pp 377-386

cal and experimental studies are necessary to establish experimentally the validity of the author's expression for heat insulation of ions in the magnetic field, as well as to establish the effectiveness of ion heating with magnetoacoustic oscillations.

The article is published by Decree of the Presidium of the Academy of Sciences USSR of 8 August 1969.

3/3

1/2 023
UNCLASSIFIED
TITLE--A THERMONUCLEAR REACTOR WITH A PLASMA COLUMN HOVERING IN A HIGH
FREQUENCY FIELD --U-
AUTHOR--KAPITSA, P.L.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 2, PP 377-386
DATE PUBLISHED--70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--THERMONUCLEAR DEVICE, DEUTERIUM, HIGH FREQUENCY DISCHARGE,
PLASMA CONTAINMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1976/2060
CIRC ACCESSION NU--AP0043588
STEP NO--UR/0056/70/058/002/0377/0386
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0043588

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE POSSIBILITY OF USING IN A CONTROLLED THERMONUCLEAR REACTOR A PLASMA FREELY SUSPENDED IN DEUTERIUM OF A HIGH FREQUENCY DISCHARGE IS CONSIDERED. CALCULATION METHODS ARE DEVELOPED. THE SIZE OF A REACTOR IN WHICH NEUTRON EMISSION IS SUFFICIENT TO REPLENISH THE ENERGY EXPENDED IN MAINTAINING THE DISCHARGE IS DETERMINED. A DESIGN OF A THERMONUCLEAR REACTOR IS PRESENTED. THE SCIENTIFIC PROBLEMS WHICH REQUIRE FURTHER STUDY IN CONNECTION WITH REALIZATION OF THE TYPE OF THERMONUCLEAR REACTOR DESCRIBED ABOVE ARE ENUMERATED.

UNCLASSIFIED

USSR

K
KAPITSIA, S. P.; et al (Institute of Physics and Power Engineering; Institute of Physical Problems, USSR Academy of Sciences)

"Photofission of Th^{232} , U^{238} , Pu^{238} , Pu^{240} , Pu^{242} and Structure of the Fission Barrier"

Moscow, Journal of Nuclear Physics; March 1970, pp 508-27

ABSTRACT: Results of measurements of angular distributions and fragment yields in photofission of even-even nuclei of Th^{232} , U^{238} , Pu^{238} , Pu^{240} , and Pu^{242} near the threshold are given. The measurements were performed on the gamma-quanta beam from the 12-Mev microtron of the Institute of Physical Problems of the USSR Academy of Sciences, with maximum energies from 5 to 10 Mev. The calculation of the bremsstrahlung spectrum of a 1-mm tungsten target which was used to determine the dependence of the photofission total cross section and its angular components on the gamma-quanta energy is described. Results of the experiment which are not within the framework of conventional concepts favor the two-peak fission barrier.

The article includes 13 equations and 8 figures. There are also three tables giving the parameters of the layers of the fissionable elements used, the parameters of the angular distributions of the fragments, and the parameters of
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USSR

KAPITSA, S. P., et al, Journal of Nuclear Physics; March 1970, pp 508-27

barrier fission and the ratio of the cross sections of dipole and quadrupole photoabsorption.

There are 23 references.

2/2

USSR

UDC: 8.74

KAPITSYN, V. M.

"Economic Effectiveness of Programming on Algorithmic Languages and in Computer Codes"

V sb. Teoriya i prakt. mekhanizir. obrab. ekon. inform. (Theory and Practice in Mechanization of the Processing of Economic Information--collection of works), Moscow, 1971, pp 84-89 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V551)

Translation: The following problem is considered. It is assumed that in some organization a program with expenditures S_c^a is set up which can be used by \bar{m} organizations without additional modifications or expenditures. It is required to find the integral functions of expenditures for all \bar{m} organizations when programming is done in computer codes as well as in the case of automatic programming, and also the function of effectiveness of utilization of algorithmic language. A formula is derived which can be used to determine the value of n_{cr} -- the critical number of program utilization. It is concluded that if the program utilization number is close to n_{cr} , then the use of an algorithmic language for compiling the program is effective in the case of utilization of the compiled program

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- 42 -

USSR

KAPITUL'SKAYA, T. S., SIDORKIN, V. I., NOVIKOVA, F. I., STARKOVA, Z. A.

"Toxicity of Allylisonium Chloride"

Tr. Tsentr. n.-i. i proyekt.-konstrukt. in-ta profilakt. pnevmokoniozov. i tekhn. bezopasn. (Works of the Scientific Research and Project Design Center of the Institute for Prevention of Pneumokonioses and Technical Safety), 1972, vyp. 7, pp 65-67 (from Referativnyy Zhurnal, 30F, Biologicheskaya Khimiya, No 18, 25 September 1973, abstract No 18F1728)

Translation: A new fluorine-containing reagent, allylisonium chloride, has a low toxicity but has a local irritating effect, and when introduced into the organism over a long period of time, even in small doses, results in a general poisoning.

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USSR

UDC 577.1:615.7/9

SIDORKIN, V. I., STARKOVA, Z. A., NOVIKOVA, F. I., KAPITUL'SKAYA, T. S.

"Toxicology of the Flotation Agent IMD-10"

Tr. Tsentr. n.-i. i proyekt.-konstrukt. in-ta profilakt. pnevmokoniozov i tekhn. bezopasn. (Works of the Central Research and Design and Construction Institute for the Prevention of Pneumonconiosis and Accidents), 1972, No 7, pp 75-77 (from RZh-Biologicheskaya Khimiya, No 17, Sep 73, Abstract No 17 F1932)

Translation: The new flotation agent IMD-10 is a highly toxic local irritant. After entering the bloodstream it attacks the viscera. It has cumulative properties.

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USSR

UDC 576.851(Providencia)+616.935-039-0

AVDEYEVA, T. A., SMIRNOVA, L. A., TIKTINA, Ye. G., and
~~KAPKOVA, A. G.~~, Leningrad Institute of Epidemiology and Micro-
biology imeni Pasteur, Leningrad City Sanitary Epidemiological
Station, and Leningrad Neva District Sanitary Epidemiological
Station, Leningrad

"Biological Characteristics of Providencia Bacteria in Connection
with Their Possible Etiological Role in Group Outbreaks of
Dysentery-Like Diseases"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii,
Vol 48, No 2, Feb 71, pp 120-123

Abstract: Strains of Providencia (Enterobacteriaceae) isolated
in the summer of 1968 from children 7-14 years old in connection
with a study of dysentery-like diseases with a single alimentary
source of infection were subjected to serological typing. A
study of 88 isolated strains of Providencia indicated that these
strains had common cultural and enzymatic characteristics, but

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USSR

AVDEYEVA, T. A., et al, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 48, No 2, Feb 71, pp 120-123

could be subdivided into six serological types on the basis of reactions with rabbit OH-immune sera. Five of the six serological types, comprising the majority of the strains, were closely related with respect to O- or H-antigens. Within each of the six O-groups, independently of the number of strains in the group, the strains had an identical H-antigen, i.e., they belonged to the same serotype. These serological characteristics differed considerably from those established for Providencia cultures of diverse origin.

2/2

USSR

UDC: 51

KAPLAN, A. A.

"On the Characteristic of Penalty Functions"

Sb. tr. In-t mat. Sib. otd. AN SSSR (Collected Works. Institute of Mathematics. Siberian Department of the Academy of Sciences of the USSR), 1972, vyp. 8(25), pp 13-22 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V496 by the author)

Translation: The paper deals with the problem of minimizing a convex function f on a convex material compact $\Omega \subset R^n$. It is proved that if ϕ_k are convex functions, $\lim_{k \rightarrow \infty} \phi_k(x) = 0$ when $x \in \text{int } \Omega$, $\lim_{k \rightarrow \infty} \phi_k(x) = +\infty$ when $x \notin \Omega$ then, beginning with some k , the functions $F_k(x) = f(x) + \phi_k(x)$ reach their absolute minimum, the sequence $\{x_k\}$ ($k > K$) of points of the minimum of function F_k having limiting points, each of which is a solution of the initial problem. A study is made of the question of simultaneous solution of the direct and dual problems of convex programming by using the method of penalties. The results obtained in this framework are a generalization of the corresponding results of McCormick and Fiacco to a broader class of penalty functions (RZhMat, 1970, 6V499).

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UDC: 512.25/.26+519.3:330.115

USSR

KAPLAN, A. A.

"Numerical Methods of Solving Problems of Convex Programming"

V sb. Optimal'n. planirovaniye (Optimum Planning--collection of works),
vyp. 17, Novosibirsk, 1970, pp 60-95 (from RZh-Kibernetika, No 12, Dec
71, Abstract No 12V809)

Translation: A systematic exposition of some theoretical results of con-
vex programming and numerical methods. Bibliography of 34 titles.

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UDC: 51

USSR

BELOV, I. V., KAPLAN, A. B.

"Mathematical Methods in Planning of Rail Transport. A Textbook for Rail Transport Colleges, Second Edition, Revised and Supplemented"

Matematicheskiye Metody v Planirovanii na Zheleznodorozhnom Transporte. Uchebnik Dlya Vuzov Zh.-D. Transp. Izd 2-e, Pererab. i Dop. [English version above], Moscow, Transport Press, 1972, 248 pp (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V493K)

Translation: Chapter 1. Criteria and indicators of optimality in transport planning. Chapter 2. Transport problem in matrix form. Chapter 3. Solution of the transport problem in network form. Chapter 4. Some varieties of transport problems. Chapter 5. Optimization of network graphs. Chapter 6. Use of the general and distributive problems of linear programming in economic calculations. Chapter 7. Nonlinear optimization problems. Chapter 8. Problems of optimization considering constant expenditures. Chapter 9. Multistage problems of optimization. Chapter 10. Simple problems of control of reserves. Chapter 11. Use of correlation dependences in economic calculations.

1/1

UDC 51

USSR

BELOV, I. V., KAPLAN, A. B.

"Mathematical Methods in Railroad Transportation Planning. Textbook for Higher Educational Institutes of Railroad Transportation. Second Edition, Revised and Enlarged"

Matematicheskiye metody v planirovanii na zheleznodorozhnom transporte.
Uchebnik dlya vuzov zh.-d. transp. Izd 2-ye, pererab. i dop. (cf. English
above), "Transport", 1972, 248 pp, ill., 82 kop. (from RZh-Matematika,
No 11, Nov 72, Abstract No 11V493 K)

Translation: Chapter 1. Optimality criteria and indices in transportation planning. Chapter 2. Transportation problems in matrix form. Chapter 3. Solution of a transportation problem in grid form. Chapter 4. Several varieties of transportation problems. Chapter 5. Optimization of grid graphs. Chapter 6. Use of general and distributive problems of linear programming in economics calculations. Chapter 7. Nonlinear problems and optimization. Chapter 8. Optimization problems considering constant expenditures.

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USSR

BELOV, I. V., et al, Matematicheskiye metody v planirovanii na zheleznodorozh-
nom transporte. Uchebnik dlya vuzov zh.-d. transp. Izd 2-ve, pererab. i
dop., "Transport", 1972, 248 pp, ill., 82 kop.

Chapter 9. Multistage optimization problems. Chapter 10. Simplest problems
in control of resources. Chapter 11. Use of correlation relationships in
economics calculations.

USSR

UDC 616.2-036.11-022.6-078.73:576.8.073.4

KAPLAN, A. S., SVERDLOV, A. B., and ANDREYEVA, L. A., Virological Laboratory at the Leningrad Municipal Sanitary Epidemiological Station

"Use of the Immunofluorescent Method for Diagnosis of Acute Respiratory Infections"

Moscow, Voprosy Virusologii, No 5, Sep/Oct 72, pp 625-627

Abstract: The investigation was conducted on 426 adults and 580 children hospitalized with acute respiratory diseases. Nose swabs for immunofluorescent (IF) analysis were taken during the first 3 days of the disease, and blood samples for serological tests were collected twice: immediately and 7-14 days later. The IF method yielded positive results in 8.0-27.2% of the patients, depending on the age group and virus type. At the same time, serological tests yielded positive results in only 7.2-21.4%. The difference was especially large in the youngest children, whose immunological reactivity is generally weaker than that of adults. The results obtained by the two methods coincided in only 41.1-55% of the cases. The weighed result was in each case higher than either single result. For example, A2 influenza virus was identified in 14.3-21.3% by the serological method, in 17.3-23.0% by the IF method, and in 23.7-30.9% by the combined method. The same is true of influenza B, parainfluenza, and adenovirus. The combined method is recommended for early and correct diagnosis of respiratory infections of viral origin.

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USSR

UDC 535.375.5+621.373:535].01

BUTYLKIN, V. S., ~~KAPLAN, A. Ya.~~, and KHRONOPULO, YU. G.

"The Self-Influence of Light Due to Forced Raman Scattering"

Leningrad, Optika i Spektroskopiya, Vol XXXI, No 2, Aug 71, pp 224-229

Abstract: It is believed that forced Raman scattering (FRS) is the cause of the self-influence of light. In a previous work the authors discussed the conditions under which FRS may cause self-focusing of light. In this article they examine the dynamics of this type of self-focusing, as well as the dynamics of the self-bending of a beam of light with a Stokes component for the case of nonsymmetric distribution of the field in the pumping beam. They show that self-influence due to FRS is almost always "weak." This means, for example that during self-focusing, the layer in which a large nonlinear addition is made to the magnitude of the dielectric constant may be considered a fine lens.

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MEDICINE

VOENNO-MEDITSINSKIY ZHURNAL, NO. 4, 1970, pp. 60-61

ROLE OF ALKALINE PHOSPHATASE OF THE NEUTROPHILES IN THE DIAGNOSIS OF VARIOUS FORMS OF ACUTE APPEN- DICITIS

N.S. KAPLAN, V.I. SOLOV'YEV

J-8444

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6201/1

In the diagnostics of acute surgical ailments, the timely detection of destructive forms is of great importance; this is especially true for acute appendicitis. The clinical symptoms and morphological changes appear not always distinctly. Precisely this is often the main cause of diagnostic errors in surgical tactics and of the postoperative complications connected with them. Thus the signs of ailment are scanty the clinician needs to look for additional data in laboratory examinations. Yet the generally accepted morphological and biochemical blood examinations (sedimentation rate, leukocyte count, blood picture, reticulocyte nitrogen, chlorella percentage of serum protein, protein fractions, and so on) are not always informative.

During the past five years, search was made for biochemical indices by which it would be possible to judge the presence of destructive forms of acute surgical ailments. As a result, we rest upon the findings of acidic acids, aminotransferase, and C-reactive protein. In 794 patients we note the correlation of the above mentioned tests, which prove that destruction of tissue in the development of an inflammation can be established. However, the development of these indices still gives only a delayed information, and, moreover, it is connected with considerable loss of time. Therefore, we needed to prolong the search after other cytobiological examination of the blood in particular the determination of the phosphatase activity of neutrophils (PN). Data in the literature and methods of our investigations prove an increased activity of the alkaline phosphatase in neutrophils in patients with various ailments which are accompanied by inflammatory symptoms (in practically healthy persons these indices vary between 21 and 43 units as an average).

The study of the activity of alkaline phosphatase is of special interest in the different forms of acute appendicitis. For this purpose, in this category of patients, the PN was determined. This was made with the former method of N.S. Kaplan. For the analysis, blood was taken at the admission of the patient, and also on the first, second, fifth, and seventh day after operation. According to morphological signs, the form of appendicitis was established on the basis of clinical examinations, and with the histological picture of the surgical intervention. Seventy-three patients were examined who had the diagnosis of acute appendicitis. The PN indices in the different forms of acute appendicitis are presented in the Table.

Forms of acute appendicitis	Number of exam.	Range of values	M	± m	± σ
Simple	23	5-09	45.73	3.3	18.2
Destructive	50	77-166	115.07	23.82	26.75

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ABSTRACTING SERVICE:

CHEMICAL ABST. 6/70

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117430t. Increase in the sensitivity of the vector-polarographic determination of selenites. ~~Kaplan, B. Ya.~~; Shirovaeva, O. A. (State Sci.-Res. Des. Inst. Rare Metal Ind., Moscow, USSR). *Zh. Anal. Khim.* 1970, 25(1), 185-7 (Russ). During the inverse polarography of selenite in H_2SO_4 as supporting electrolyte, the redn. peak of accumulated Se are 7-10 times higher when $CuSO_4$ is present. The mechanism of the electrode process is suggested on the basis of data obtained by the anal. of products of prolonged electrolysis at a const. potential on a stationary and a dropping Hg electrode in the presence and the absence of Cu.

Chaim Weiner /

REEL/FRAME
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P.N. 18

1/2 008 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--EFFECT OF PYROPHOSPHATES ON THE VECTOR POLAROGRAPHIC BEHAVIOR OF
SOME IONS IN 1M PHOSPHATE SOLUTIONS -U-
AUTHOR--(02)-ZEMTSOVA, A.G., KAPLAN, B.YA.
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS WERE STUDIED OF PYROPHOSPHATE ADDITIVES (0.02 AND 0.2 MOLE-L.) TO M. PHOSPHATE SOLNS. ON THE POLAROGRAPHIC BEHAVIOR OF DEPOLARIZERS ON CHANGING THE PH FROM 1.1 TO 14. THE OBTAINED DATA INDICATE SEVERAL ASPECTS OF INCREASING THE EFFICIENCY OF THE VECTOR POLAROGRAPHY OF PHOSPHATE SOLNS. BY MEANS OF PYROPHOSPHATE ADDITIVES. IN ADDN. TO INCREASING THE SENSITIVITY AS A CONSEQUENCE OF INCREASING THE REVERSIBILITY OF ELECTRODE REACTIONS (CU AT PH 3-7, TE AT PH 1-9, ETC.) OR BY DECREASING THE SLANT OF THE PEAK (GE(IV), FE(III)), THE PYROPHOSPHATE ADDITIVES CAN BE USED TO AVOID INTERFERENCES FROM MACROCOMPONENTS DURING DETN. OF TRACE COMPONENTS BY (A) SUPPRESSING THE POLAROGRAPHIC ACTIVITY OF THE FORMER, (B) BY INCREASING THE SOLY. OF THE FORMER, AND (C) BY INCREASING THE DIFFERENCE IN PEAK POTENTIALS.

FACILITY: INST. KHIM., DUSHANBE, USSR.

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PRIMARY SOURCE: Izvestiya Sibirskogo Otdeleniya, AN SSSR,
Seriya Khimicheskikh Nauk, Nr 12(162), Nr 5,
pp 13-16

P. M. Valov, D. F. Kaplin

MÖSSBAUER SPECTRA OF THE SOLID SOLUTIONS
OF FERROUS OXYDE MAGNESIUM OXYDE

14
3
20

Mössbauer Spectra (MS) of the solid solutions $\text{FeO}_{1+x} \cdot z\text{MgO}$ have been investigated at $0 < x < 0.1$ and $1 < z < 7$ in the temperature interval from 78 to 298°K. The change of hyperfine structure of MS with temperature shows that the magnetic-ordered state of iron atoms does not take part in the solid solutions of the nonstoichiometric ferrous oxyde in magnesium oxyde at $z \gg 1$ over the temperature interval investigated. Analysis of MS parameters has been performed in terms of the classical model of the structure of the solid solutions and suggested an univalent state of iron atoms in non-stoichiometric ferrous oxyde.

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USSR

UDC 658.5-62.503.55

ALIYEV, T. M., Dr Technical Sciences, Engineers KAPLAN, G. A., KORSH, B. S.,
and SEYDEL', L. R.

"One Approach to Optimization of Continuous Production Processes"

Moscow, Pribery i Sistemy Upravleniya, No 10, 1971, pp 5-6

Abstract: An attempt is made to formulate and solve a problem of stochastic programming associated with the random character of applying the solution abstracted from the random character of the coefficients of the problem. This approach permits the researcher to: (1) find solutions in the application of which the given system of limitations is satisfied with slight errors; and (2) evaluate, from the viewpoint of satisfying the assigned limitations, the degree of influence exerted by measurement accuracy on the specific function, which procedure, in turn, makes it possible to formulate feasible requirements for accuracy of the measuring instruments. This article is concerned with solving the first problem. The authors give the requirements and solve the problem mathematically.

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USSR

KAPLAN, G. A.

"One Class of Integer Linear Programming Problems"

Ekonomika i mat. metody [Economics and Mathematical Methods], 1973, 9, No 2, pp 336-338 (Translated from *Referativnyy Zhurnal - Kibernetika*, No 8, 1973, Abstract No 8 V506 by Yu. Finkel'shteyn)

Translation: Work (RZHMate, 1966, 12V299) studied the following class of problems (important for practical application) with limitations of the following type:

$$\sum_{i=1}^n x_{ij} = 1, \quad j = 1, \dots, n, \quad (1)$$

$$x_{ij} < x_{jj}, \quad j, i = 1, \dots, n, \quad i \neq j, \quad (2)$$

$$x_{ij} \geq 0, \quad j, i = 1, \dots, n. \quad (3)$$

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KAPLAN, G. A., Ekonomika i mat. metody, 1973, 9, No 2, pp 336-338

On the assumption that all reference plans of the problem are integer plans, it is concluded that it is possible to produce an optimal integer plan; however, this approach has not been sufficiently studied (and the assumption that the reference plans are integer plans requires checking). It is found that this assumption can be proven, which is done in this work. Problems of this type were first studied in this manner by V.A. Trubin (RZHMat, 1970, 6V518).

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USSR

UDC 632.95

VOLODKOVICH, S. D., ANDREYEVA, YE. I., GOLYSHIN, N. N., MONOVA, V. I., KAPLAN, G. I., PRONCHENKO, T. S., USMANOV, N. G., ABELENISEV, V. I., DVOYCHENKOVA, I. A., and SKAZKINA, T. P.

"Bromtan"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 116-129 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13R501 by T. A. Belyayeva)

Translation: The preparation bromtan ($\text{BrCCl}_2\text{CHBrCH}_2\text{CH}_2\text{CH}_2\text{Cl}$) (I) is being tested as a soil fungicide and antiseptic for nonmetallic materials. I is as effective as carbathion in the control of melon fusarial wilt. I in a concentration of 0.8 percent is equivalent to DNOC in an 0.6 percent concentration with respect to hibernating forms of the causative agent of apple scab and brown spot. I is active in the control of cotton root rot and wilt at a consumption rate of 100-100 kg/ha.

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USSR

UDC 632.934.1

VOLODKOVICH, S. D., and KAPLAN, G. I., All-Union Scientific Research Institute -
of Chemicals for Plant Protection, Moscow, State Committee for Chemistry USSR

"Synthesis of Bromtan, A New Fungicide"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 43, May 70, No 5, pp 1140-1143

Abstract: Bromtan, 1,1,5-trichloro-1,2-dibromopentane, is synthesized in a two-step process: 1) dehydrochlorination of 1,1,1,5-tetrachloropentane to trichloropentene in the presence of aluminum chloride; 2) bromination of trichloropentene. Bromination temperature should be kept below 30°C, which requires a system of heat removal since this is an exothermal reaction. The resultant product is chemically pure and may be used without vacuum distillation. Bromtan is an effective soil fungicide and is recommended for combatting diseases of fruits, vegetables and flowers from indoors and outdoors. The chemical is also recommended for fighting cotton wilt and for eradicating various hibernating vectors of diseases such as apple scab. Bromtan may also be used as an antiseptic for nonmetallic materials.

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